

**RAIN SENSOR \_\_\_\_\_ NRS1/NRS1-R**

**LOW TENSION HEATED RAIN SENSOR (R-RADIO VERSION)**



**MANUAL FOR INSTALLATION AND USE**



The device described in this manual has been manufactured in accordance with safety standards and conforms to the stipulations of current standards in force. When correctly assembled, installed and used according to the present instructions, it will not generate any danger for persons, animals or items.

Products subject to EU directives comply with the essential requirements stipulated by the latter. **CE** markings mean that our products can be sold and installed throughout the European Union without any further formality.

The **CE** marking on the product, packaging and indications for use provided with the product indicate 'presumed conformity to the directives' issued by the European Community.

The manufacturer holds the technical archive with documentation providing that products have been examined and evaluated for conformity to directives.

**Symbols used in the manual**



**DANGER**

*This indication draws the attention about potential dangers for safety and health of peoples and animals.*



**INFORMATION**

*This information gives further suggestions.*



**ATTENTION**

*This indication draws the attention about potential dangers for the product itself.*



**WARNING**

*This indication draws the attention about potential damages to goods.*



**ENVIRONMENTAL INSTRUCTION**

*Environmental indication draws the attention about potential dangers for the environment.*

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## 1. SAFETY INDICATIONS

### 1.1. General notes



**WARNING: BEFORE INSTALLING THIS APPLIANCE, ENSURE ALL SAFETY INDICATIONS HAVE BEEN READ CAREFULLY AND UNDERSTOOD IN ORDER TO PREVENT CONTACT WITH ELECTRICITY, INJURY OR ANY OTHER INCIDENT. THE MANUAL SHOULD BE CONSERVED FOR FURTHER CONSULTATION AT A LATER DATE.**



**The manufacturer accepts no responsibility for damage to people, animals or things incurred by improper use.**



**Use for any applications other than those indicated must be authorised by the manufacturer after technical review of the assembly.**



Plastic bags, polystyrene, small metal parts such as nails, staples etc. should be placed out of the reach of children as they constitute a potential source of risk.

Avoid that children play with the appliance and its electrical products; keep it out of baby's reach.



Do not use solvents or jets of water to wash the appliance. The appliance should not be submerged in water.

### 1.2. Notes for functioning and use

**NRS1-NRS1/R** (*NRS1R is different from the other because of the antenna protected by a black sheath in the feeding cable*) is a sensor to detect rain and through the connected cable or in case of R version by means of a 433,92 MHz radio signal, transmits the signal to a device able to interpret it.

**Use for any applications other than those indicated must be authorised by the manufacturer after technical review of the assembly.**



This product is designed to be used with the manufacturer's original products. Use with any other products may result in damage or malfunctions.



The initial start-up of the sensor should be carried out by a skilled and qualified person following the manufacturer's instructions.



After removing packaging, check for any damage on the appliance.



Before using the rain sensor, check that the power has the same nature, quality and tension as those indicated on the technical data label on the appliance.



This machine is destined exclusively for the use for which it has been designed and the manufacturer accepts no responsibility for damage incurred by improper use.



Repairs should only be performed by qualified personnel at assistance centres authorised by the manufacturer.



The product must be disposed of in compliance with local environmental regulations and not as household waste.

## 2. TECHNICAL AND CONSTRUCTIONAL INFORMATION

- **NRS1** and **NRS1/R** sensors signal the rain event to an apparatus able to interpret and command the connected devices. The sensor is insensitive to the formation of dew or moisture after rainfall dries very quickly and being heated - below +4 °C - does not allow the formation of ice.
- The sensor is fed with a tension between 12V and 24V= (DC).
- Electrical connection must comply with the **CE** rules on electrical systems.
- The sensor is built according to EU directives and is certified in accordance with label and in compliance with the EMC interference.
- All connected devices must be manufactured according to the regulations in force and comply with regulations issued by the European Community.

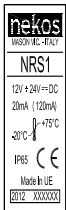
## 3. TECHNICAL DATA

Model	NRS1
Power supply voltage	12V ÷ 24V= (DC)
Maximum absorbed power	20 mA (120 mA with active heater)
Type of sensor	Capacitive
Heater intervention	< +4 °C
Type of contact	SPDT
Rating contact	0,5 A / 125VAC – 1 A / 24VDC
RF transmission	433,92 MHz
Functioning temperature	-20 ÷ +65 °C
Operating radius in open air	50 m
Feeding cable length	5 m
Feeding cable type / number of wires	PVC LiY2Y protected from UV / 5 wires
Protection index	IP65
Dimensions	45x93 h=19 mm
Weight	52 g (cable excluded)

*Any data reported in this table is not binding and may be susceptible to variations without notice.*

## 4. ID PLATE AND MARKING DATA

**NRS1** and **NRS1/R** rain sensors have **CE** marking and are destined for use in the European Union without further requirements. The **CE** marking on the product, packaging and indications for use provided with the product indicate 'presumed conformity to the directives' issued by the European Community.



The manufacturer holds the technical archive with documentation providing that products have been examined and evaluated for conformity to directives.

ID plate data are indicated on a polyethylene adhesive label applied on the product, printed in black on a grey background; see example aside.

## 5. TECHNICAL INFORMATION

**NRS1** or **NRS1/R** rain sensor, to completely fulfil its task, has to be placed out in the open fully exposed to any precipitation, possibly over the roof or in a similar position, or where can be affected by rainfall.




Sensor can be connected to all stations or devices where signal processing is foreseen or where a free contact signal is necessary (free from tension).

Feeding cable is 5 m long, made with a PVC sheath weather resistant, fire retardant and UV resistant.

## 6. ADVICES AND INSTRUCTION FOR MOUNTING

**THESE INSTRUCTIONS ARE INTENDED FOR TECHNICAL AND SPECIALIZED PERSONNEL. THUS BASIC SAFETY AND WORKING TECHNIQUES ARE NOT DISCUSSED.**


To guarantee perfect function and facilitate installation, please note the following indications and warnings:

-  Check that the cable length is sufficient to link to the station or control apparatus. The eventual junction for extending the cable must be perfectly sealed with a cable of the same type and colours.
-  **Warning.** Check that the power supply is the same as those indicated on technical data applied to the device.
-  To keep efficient and have a perfect functioning we suggest to clean the sensitive part at least any 6 months or any time is dirty due to smog, leaves, impurity, etc.



Advices for sensor installation:

1. Choose the most suitable position where place the rain sensor. It has to be put outside in direct contact with weathering.
2. The sensor is placed slightly tilted (~ 20 °) to facilitate the flow of water, in a position that does not have shelters to the fall of rain. Place it under the trees is not recommended because it alters the natural weather event.
3. Support can be of 2 types depending from attack surface; in both cases is suggested to make the cable exit below:
  - o Surface flat / tilted – with high resistance adhesive and suitable for weather or fixed with a screw;
  - o Fix support such as rod or similar where to apply the metal bracket – provided – with a screw.
4. Complete cable system and electrical connection to the station or control and feeding apparatus following the schema on next page. Bind with one or more clamps the cable to make it integral with the supporting structure.

5. If radio version is used, check rain sensor memorization has been done on control device (Kato ADV Radio).
6. Make a functional test.

 *To test a rain sensor is sufficient to wet (pour or spray water) on sensitive part of it; the sensor transmits the signal of “wet sensor”. LED indicators of various apparatus should light.*

## 7. ELECTRICAL CONNECTIONS

-  Electrical connections should be carried out in compliance with safety rules and keeping in mind the meaning of various symbols and colours of the wires of the feeding cable.
-  Sensor can work with any station unit or apparatus able to interpret its signal, therefore the connections of the power cord are called in the specific instructions of the central or equipment.

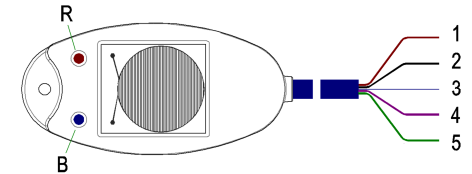
The table below shows the caption of any wires and the wiring diagram.

Caption of each wire - NRS1:


- 1 - RED (+) connected to +12/24V;
- 2 - BLACK (-) connected to -12/24V;
- 3 - BLUE (N.O. contact);
- 4 - PURPLE (N.C. contact);
- 5 - GREEN (Common).

Caption of each wire - NRS1/R:

- 1 - RED (+) connected to +12/24V;
- 2 - BLACK (-) connected to -12/0V;
- 3 - BLUE DON'T CONNECT;
- 4 - PURPLE DON'T CONNECT;
- 5 - GREEN DON'T CONNECT.



### 7.1. Replace P2 rain sensor on N series units

-  In the case of use NRS1 rain sensor to replace the old P2 on N series stations, during connection phase operate as follows:
  - **RED** wire connected at the place of **WHITE** wire;
  - **BLACK** and **GREEN** wires connected together at the place of **YELLOW** wire;
  - **BLUE** wire connected at the place of **BLUE** wire;
  - **PURPLE** wire has to be insulated and not connected.

## 8. DIP-SWITCHES SELECTION

In the sensor base, covered by a black cap, there is the access to dip-switches to program the sensor which give the possibility of modifying status and sensitiveness.

Dip-switches meaning is the following:

Dip-switch 1 – sensor sensitiveness	ON – Maximum sensitiveness ( <i>small drops</i> )
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	OFF – Minimum sensitiveness ( <i>rain</i> )
Dip-switch 2 – sensor heater	ON – Unable OFF – Active

The sensor leaves the factory with defaults sets:

- Dip-switch 1 set on OFF;
- Dip-switch 2 set on OFF.

## 9. LED SIGNALS

Rain sensor has 2 signalling LED that indicate the functioning status.

- **B - BLUE** led flashing indicates that the sensor is fed.
- **R - RED** led lit fix indicates “wet sensor”; it has active command.



## 10. RADIO CONTROL FOR CLOSING DUE TO RAIN (NRS1R)

The NRS1R radio rain sensor is a device capable of controlling the KATO ADV RADIO motor remotely through a 433.92MHz signal.



**THE RAIN SENSOR IS NOT FACTORY-PROGRAMMED (ASSOCIATED).**

First follow the instructions provided below concerning the specific operation of the machines you would like to control, then those of the actuator to be controlled (KATO ADV RADIO).

### 10.1. Saving the rain sensor on KATO ADV RADIO

The NRS1R rain sensor, as soon as it senses the presence of rain, transmits a unique signal at the radio frequency 433.92 MHz. The NRS1R rain sensor can be used to control several actuators, as long as the sensor is associated with the various KATO ADV RADIO actuators and thus a window, with the procedure described below.

The encoding used varies for each channel, so each transmission will send a signal that is different from all the others. It follows that the receiver must be able to recognize the enabled transmitters, thus the transmission codes should be saved following the procedure below:

- Equip yourself with the NRS1R radio rain sensor, checking beforehand that it is working and is powered properly (*Blue LED flashing*).
- On the KATO ADV RADIO actuator, briefly press (*for about 1 second*) the small “PRG” button located near the terminal block. The slowly flashing LED indicates that it is waiting to receive a valid radio code.
- Within 10 seconds, place the palm of your hand on the rain sensor (*on the grey circular zone*) waiting for the Red LED rain indicator to start flashing.
- If the code is saved correctly, the LED on the KATO ADV RADIO actuator will emit one long flash (1 sec.) as confirmation; then the LED will go out and remain at rest.
- If the code is not saved correctly - due to the memory being full, for example, or the sensor being incompatible - the LED on the KATO ADV RADIO actuator will emit a series of quick flashes for about 1 second; then the LED will go out and remain at rest.

## 11. ENVIRONMENTAL PROTECTION



All materials used in the manufacture of this appliance are recyclable. We recommend that the device itself, and any accessories, packaging, etc. be sent to a centre for ecological recycling as established from laws in force on recycling.

The device is mainly made from the following materials:

Iron  Aluminium  Cuprum  Zinc  Silicon  Plastic of various type

Dispose materials in conformity with local regulations about removal.

## 12. RECALL TO MAIN PRINCIPLES OF WARRANTY CERTIFICATE



The manufacturer will guarantee good function of the appliance. The manufacturer shall undertake to replace defective parts due to poor quality materials or manufacturing defects. The guarantee covers products and individual parts for 2 years from the date of purchase. The latter is valid as long as the purchaser possesses proof of purchase and completion of all agreed conditions of payment. Guarantee of good function of appliances agreed by the manufacturer implies that the latter undertakes to repair or replace free of charge and in the shortest period possible any parts that break while under warranty. The purchaser is not entitled to any reimbursement for eventual direct or indirect damage or other expenses incurred. Attempt to repair by personnel unauthorised by the manufacture shall render the warranty null and invalid. The warranty does not cover fragile parts or parts subject to natural wear and tear or corrosion, overload, however temporary etc. The manufacturer will accept no responsibility for eventual damage incurred by erroneous assembly, manoeuvre or insertion, excessive stress or inexpert use. Repairs performed under guarantee are always "ex-factory of the manufacturer". Respective transport expenses (out/back) are the responsibility of the purchaser.

## CERTIFICATO DI CONFORMITA' - DECLARATION OF CONFORMITY

	<b>NEKOS S.r.l.</b> - Via Capitoni, 7/5 <b>36064 Mason Vicentino (VI) – ITALY</b> ☎ +39 0424 411011 – Fax +39 0424 411013 <a href="http://www.nekos.it">www.nekos.it</a> <a href="mailto:info@nekos.it">info@nekos.it</a>

Il sottoscritto legale rappresentante del costruttore **NEKOS S.r.l.** dichiara che il prodotto elettrico:  
*The undersigned, representative of NEKOS manufacturer declares that the electrical product:*

Modello / Model	Designazione / Designation
NRS1 - NRS1/R	<b>Sensore pioggia capacitivo</b> Capacitive rain sensor

è conforme alle disposizioni delle seguenti direttive:

- R&TTE 1999/5/CE – (Direttiva 1999/5/CE del Parlamento e Consiglio Europeo del 9 marzo 1999)
- Direttiva 2004/108 CE (Direttiva EMC) e successivi emendamenti
- Direttiva 2006/95 CE (Direttiva Bassa Tensione) e successivi emendamenti

*Is in accordance with the following Directives:*

- R&TTE 1999/5/CE - (Directive 1999/5/CE of Parliament and European Council of 9th March 1999);
- 2004/108 EC Directive (EMC Directive) and subsequent amendments
- 2006/95 EC Directive (Low Voltage Directive) and subsequent amendments

Ultime due cifre dell'anno in cui è affissa la marcatura CE:  
*Last two figures of the year of the CE marking:*

Luogo:  
Place:

**Mason Vicentino (VI) - Italy**

Data:  
Date:

**15/07/2014 / 15/07/2014**

Firma:  
Signature:

**Giuliano Galliazzo**  
A.D. - President

